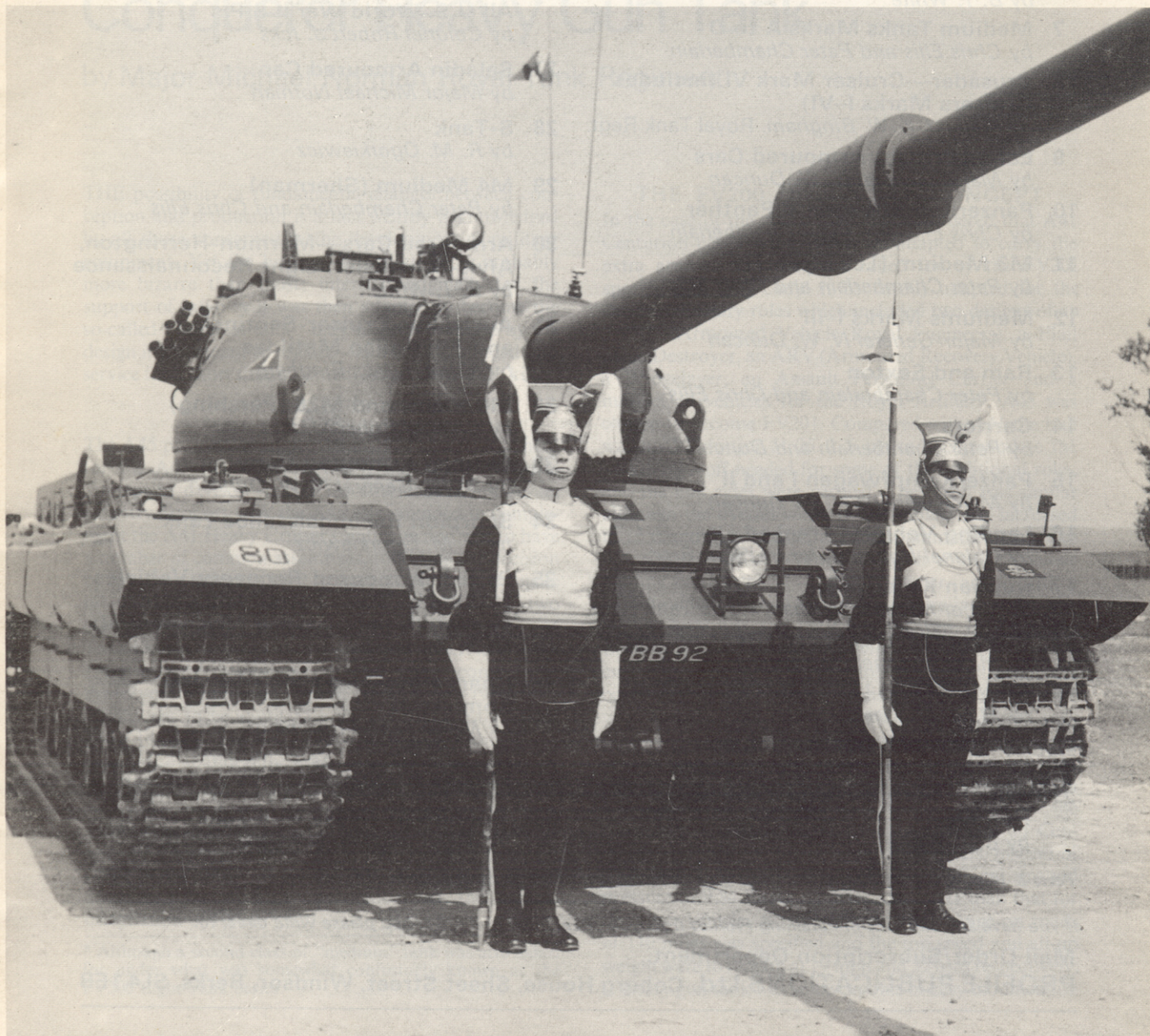


Conqueror Heavy Gun Tank

by Major Michael Norman Royal Tank Regiment



AFV/Weapons Profiles

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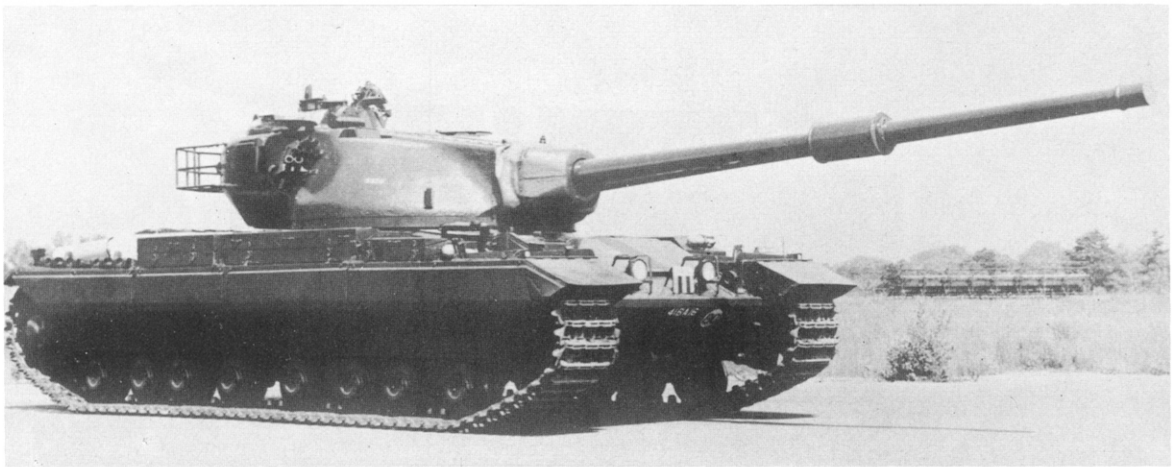
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Conqueror Mark 2, the production vehicle.

Conqueror Heavy Gun Tank

by Major Michael Norman Royal Tank Regiment

THE possibility of fundamental changes between conception and production is a fact wearily acknowledged by all those concerned in the development of military equipment. Yet the history of Conqueror is probably more bizarre than most; intended originally for the support of infantry it was then adapted to become the so-called Universal tank—only to be superseded by the design it was meant to replace—and finally emerged into service for a short time as a highly specialised tank killer.

A45

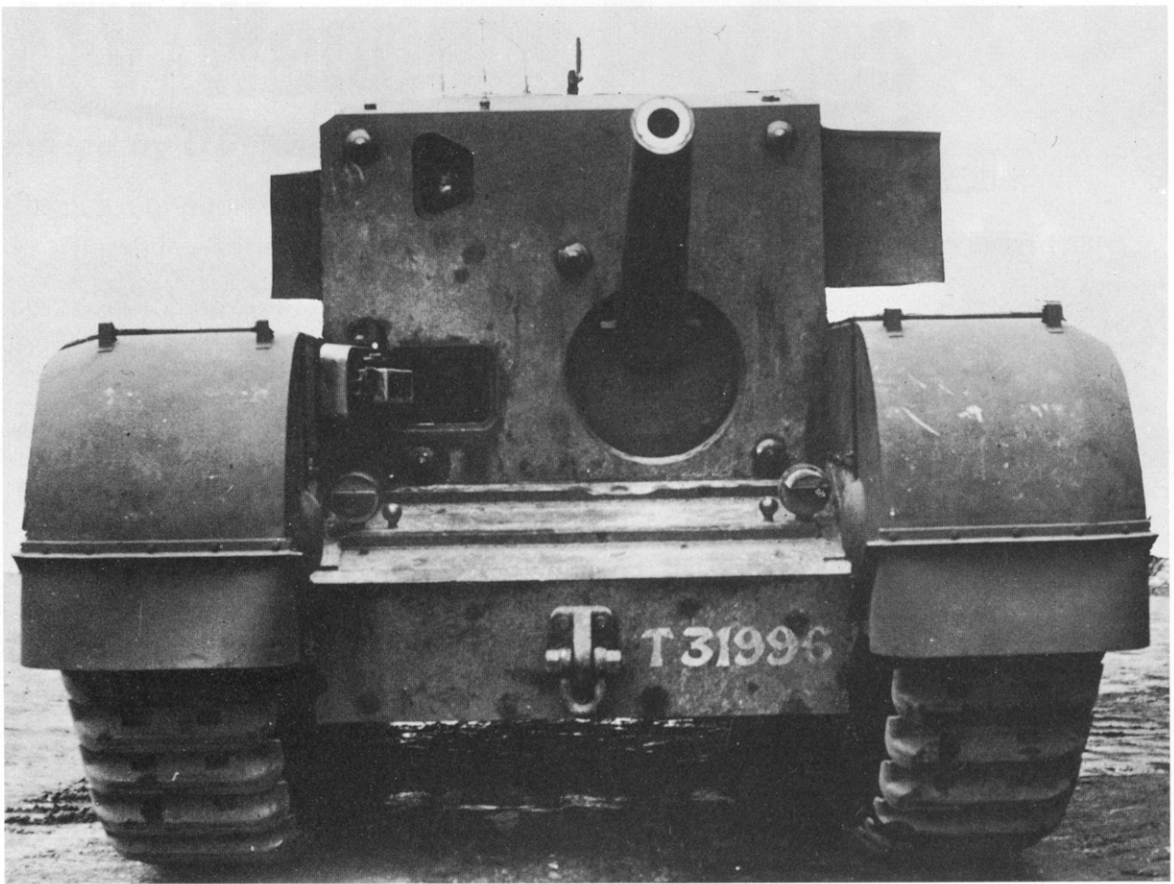
The A45 project was approved in 1944 as a replacement for the A43 Black Prince which was an unsuccessful attempt to develop further the Churchill series. As an Infantry Support tank the A45 was intended to complement the A41 Heavy Cruiser Centurion and was to have a number of common assemblies, following the decision by the Tank Board in 1942 to work towards some degree of standardisation between the designs for the two classes. Curiously, the newly formed Department of Tank Design was not able to handle the work and English Electric were appointed as the main contractors. Prototypes were expected to be ready in mid-1946, their weight was to be about 55 long tons and the top speed some 18 mph. The first change came as a result of the decision to abandon the artificial and stultifying distinction between the Cruiser and Infantry roles, Sherman and Churchill having been successfully used in both. This welcome break with tradition was formalised in the issue of a comprehensive list of the proposed post-war range of fighting vehicles in 1946 where the Universal Tank and its variants appeared under the general designation of FV200*.

* Although a second class of “medium” tank was also asked for under what was somewhat confusingly known as the FV300 Light Tank Series.

THE FV200 UNIVERSAL CONCEPT

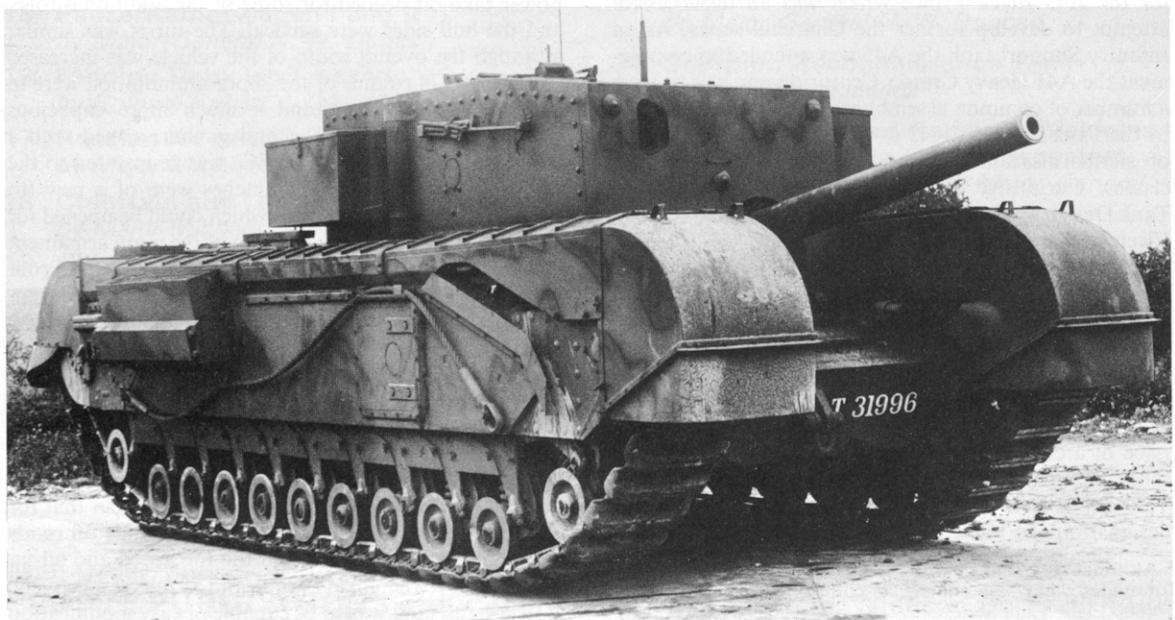
In the case of the gun tank it was considered that A41 Centurion could not possibly be adapted to carry the extra armour and weapons called for by the FV201 specification, nor could it be readily adapted for the various ancillary roles which included two designs of an AVRE (Armoured Vehicle Royal Engineers), a Flail Mine Destroyer, an ARV (Armoured Recovery Vehicle), a Bridgelayer, an Assault Personnel Carrier and a number of vehicles for the Royal Artillery. A45 was chosen to become FV201. Compared with A41 the hull was a little longer at 25 ft 6 ins to accommodate the power take-off needed for some of the additional roles, and the hull sides were vertical. The turret was similar although the overall width of the vehicle was increased to 13 ft and 74 rounds of the 20pdr ammunition were to be stowed vertically round a much more capacious fighting compartment. The hull gunner, armed with a ball-mounted 7.92mm Besa MG, was re-instated to the left of the driver and their hatches were of a new (to Britain) “lift and swing” type which could be opened for escape irrespective of the position of the main armament barrel. The thickness of the glacis plate and the hull roof was increased and a new system for heating and ventilating the crew compartments was incorporated. A development of the Meteor engine was to be installed whose output was raised to about 750 bhp by the use of a metered fuel injection system. The design of the suspension would be basically similar to that on Centurion although the use of eight road wheels, instead of six, and 32 ins wide tracks gave a nominal ground pressure of 9.84 lbs/sq in, markedly lower than that for the other vehicle. A maximum cruising range on roads of 110 miles was specified and the top speed and all-up weight were to remain at 19 mph and 55 tons respectively.

Every gun tank was to be capable of easy modification



One of the main shortcomings of the basic Churchill (Infantry Tank Mark IV) design was that it was too narrow to accept a turret wide enough to take a 17-pdr. To provide a heavier-armed "I" tank the Churchill 3-inch Gun Carrier was improvised by mounting a 3-inch 21 cwt. AA gun with limited traverse on a Churchill chassis. This photograph shows the pilot model built early in 1942. The Churchill 3-inch Gun Carrier was not used operationally.

Three-quarter front view of the Churchill 3-inch Gun Carrier, which had a limited traverse. This vehicle has its place in the Conqueror story by virtue of the fact that it directly preceded the A43 Black Prince as an attempt to produce an infantry tank mounting a large calibre high velocity gun, the need for which was made abundantly apparent by the Desert fighting in 1941.





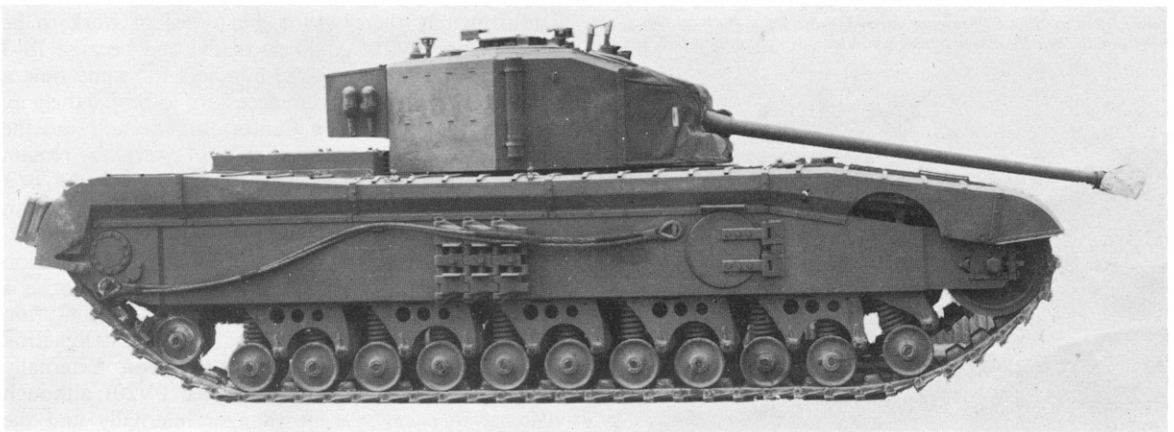
The A43 Black Prince, sometimes known as the "Super Churchill", was essentially similar to Churchill VII, but scaled up and with wider turret to take a 17-pdr. gun.

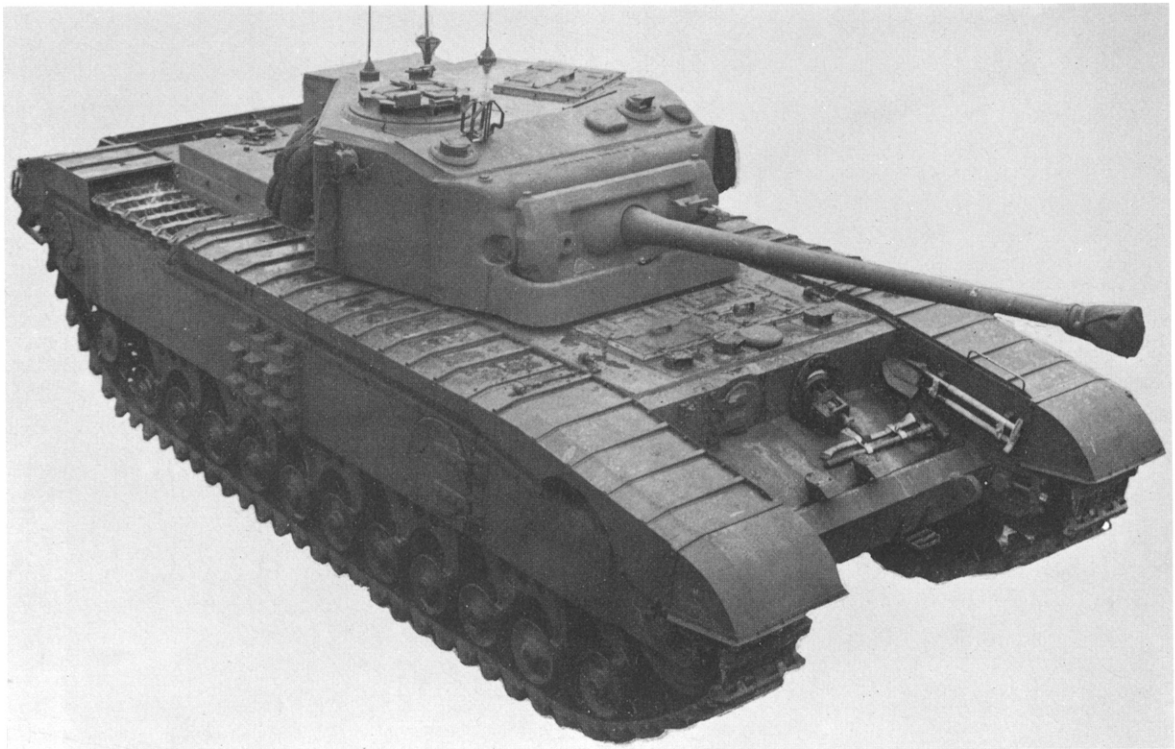
to mount a flamethrower and a dozer blade. Conversion to the flame role was to be carried out by the crew with the help of REME fitters. The flame head with its associated controls for the hull gunner would be installed in the centre of the glacis plate and a trailer carrying 400 gallons of fuel would be towed. A patch plate of armour was to be welded over the hole in the glacis plate should it be decided to remove the flame head subsequently. The internal fuel pipes were to be installed in the vehicle during manufacture and a jet range of not less than 200 yds was specified, compared with the 100 yds or so of the Churchill Crocodile. The mounting brackets and the hydraulic control system for the dozer were also to be installed *ab initio* although the holes for the operating shafts had to be flame cut in the hull walls during the conversion process in the field. The require-

ment to swim using the DD principle was added later but would involve the resources of a REME Armoured Workshops to fit the equipment. A speed in still water of 5 knots was asked for and the screens were to be capable of being collapsed instantly after leaving the water without the crew exposing themselves.

The wooden mockup of the basic gun tank was ready for the User's approval in July 1947 and the first prototype was undergoing running trials by the following October. Design work on the variants proceeded at a lower priority, FV202 AVRE being the most advanced. But the first blow to the idea of universality came with the discovery that the flail tank needed a hull some inches longer than that for other vehicles in the series in order to accommodate the gearbox having the necessary outputs to drive the flail drum: the User reluctantly

Side view of the A43 Black Prince. Only six of these vehicles were built and the Black Prince was abandoned in favour of the A45 project.





In the Black Prince the 17-pdr. gun was turned sideways for left-hand loading. As compared with the Churchill VII the intake louvres were moved on to the hull top and the exhaust was led to the rear.

agreed to the development of FV204 as a specialised vehicle from the outset. The second blow came when it was found that the gun tank fitted with DD equipment, as well as the FV208 Bridgelayer, would be too high to be launched from the LCT 8 Type of tank landing craft that would be in service for the foreseeable future; and the flail too wide. But the end of the FV200 Universal Concept came in 1949 when a reappraisal of Britain's tank development showed that by the time that FV201 was in service it would probably be incapable of matching its possible Soviet opponents. It was also considered uneconomic to develop highly specialised variants for

small production runs on a new and expensive design of chassis which anyway incorporated a number of redundant features for the tasks in hand. It was therefore decided to cancel FV201 in favour of Centurion which would be further developed as the standard medium tank until a completely new design was ready. Meanwhile the basic design of FV201 was to be adapted to meet the requirement for a Heavy Gun Tank FV214 which was to be capable of defeating the Soviet IS-3 and its successors at normal fighting ranges. The specialised vehicles, mainly for the Royal Engineers, would be based on Centurion or Churchill hulls and most of those based on the FV200 design were cancelled in the same year or a little later, leaving only the ARV to reach actual troop service.

Throughout most of World War II British tank philosophy distinguished between the cruiser and infantry support roles. The T14, built for the British by the Americans, was an assault tank project which was dropped after only two pilot models had been produced. By the time this tank, seen here at the R.A.C. Museum, arrived in Britain in 1944 interest had shifted to the heavily-armed cruiser which would be a multi-purpose tank.



CAERNARVON AND CONQUEROR

Unfortunately there was a great deal of work to be done before FV214 could be ready, and because IS-3 had been available in large numbers for some time a number of expedients were necessary to bridge the gap, some of them based on Centurion. The hull and the automotive components of FV214 were to remain largely unchanged from FV201 but the turret had to be a completely new design and its 120mm gun—based on an American specification—was not yet ready for production. So to gain experience in the building and operation of such a large vehicle it was decided to authorise a limited number of chassis, mounting the Centurion Mark 3 turret on an adaptor ring, under the designation of FV221 Medium Gun Tank Caernarvon. Externally this tank was similar to the ill-fated FV201 although there were a number of changes internally and the

weight had risen to 60 tons. The first prototype was running by April 1952.

The design of the new turret for Conqueror was delayed slightly by the decision to include a separate fire control turret for the commander and to scrap the automatic loader for the 120mm gun, but the first 20 pre-production vehicles were leaving the factory in mid-1955 and most of them were sent to BAOR for troop trials. About 180 vehicles were built in all and production of the Mark 2 version ended in mid-1959. The last was withdrawn from service in 1966.

CONQUEROR DESCRIBED

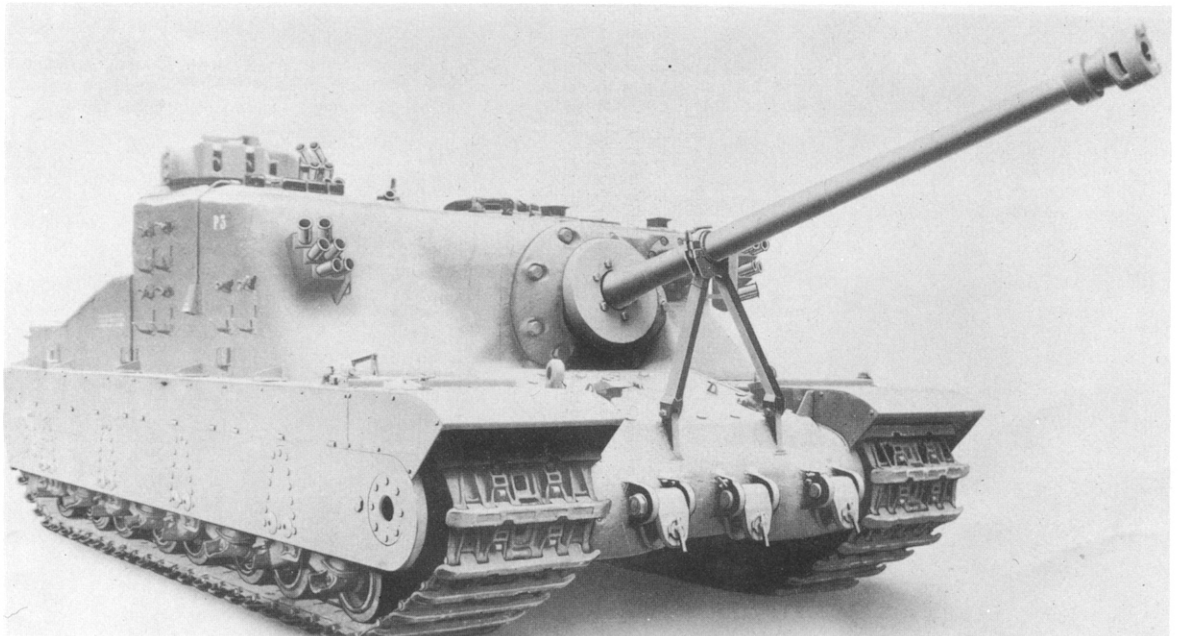
The layout of the welded armour hull is conventional, the driver sitting in the front right with main armament ammunition stowed to his left, the fighting compartment in the centre and separated from the engine and transmission compartments at the rear by a fireproof bulkhead. In order to accommodate the wide turret ring, however, hull panniers are built out to overhang the top run of the tracks. There are minor visible differences between the Mark 1 and Mark 2 (production) vehicles, the latter having a better configuration at the join between the glacis and hull plates, one periscope instead of three for the driver and a straight-through exhaust system. An ammunition loading hatch in the left wall of the fighting compartment is usually hidden from view by the spring steel skirting plates.

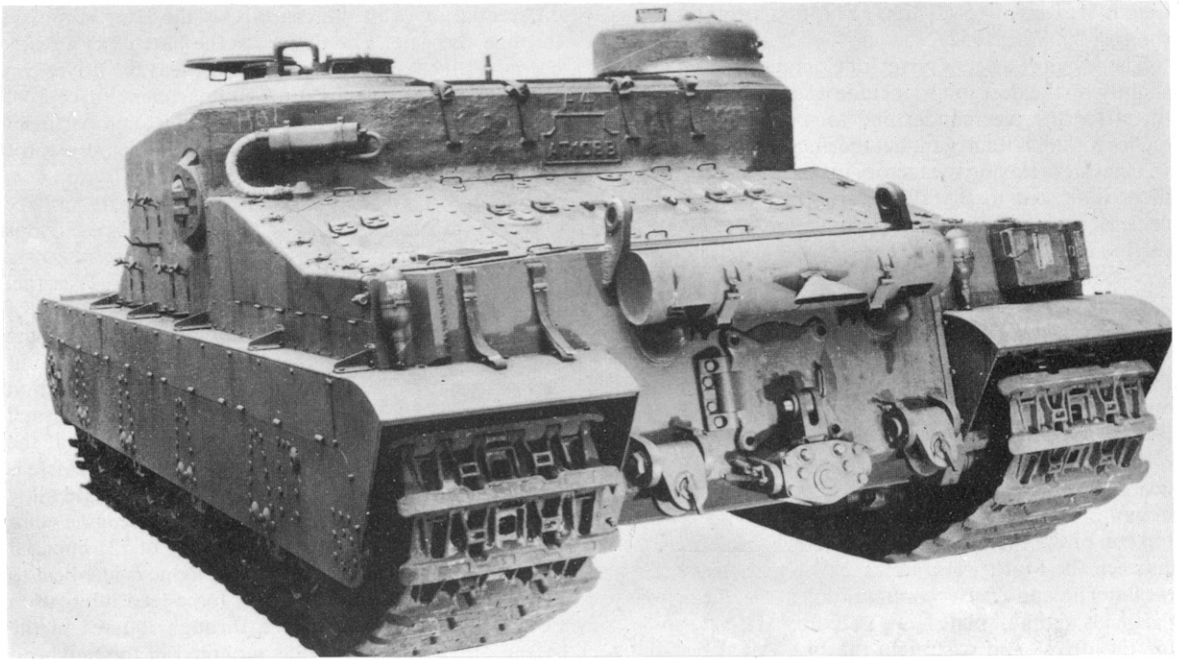
The driver's compartment contains the usual steering levers and foot controls designed for comfortable operation at all positions of the driver's seat. The lever for the unsynchronised gear change system is mounted centrally. Although rolling changes normally involve some skill in double de-clutching, changes up (where it is essential to reduce the loss of the vehicle's forward momentum) are possible in a single quick action by momentarily applying one steering lever which slows the

differential drive in the gearbox as the lever is moved through the gate. The design of the hatch has already been described and by collapsing his seat the driver can crawl back into the fighting compartment in case of emergency. Ancillary controls in this compartment include those for operating the charging engine for the four series-connected 6 volt batteries behind the seat.

Conqueror is powered by the M120 12-cylinder, Vee type, liquid-cooled OHV gasoline engine which develops 810 bhp at 2800 rpm. The significant increase in power over its Meteor predecessor is due to the use of a fuel injection system which inserts a metered amount of gasoline into the induction manifold just prior to the inlet valves opening. Not only does the optimum amount of fuel reach each cylinder but its better atomisation leads to a greater volumetric, and therefore, thermal efficiency per cylinder. A further advantage is that the distribution of the fuel is unaffected when the vehicle is tilted as it is driven over uneven surfaces. The light alloy fuel tanks are mounted on the sides of the engine compartment and have a combined capacity of 221 imperial gallons. In most other respects the engine is identical to the Meteor, having a dry sump, force-feed lubrication system. Cooling air is drawn through louvres in the engine decks by the two fans mounted in the bulkhead between the engine and transmission compartments, over the gearbox and up through the near horizontally mounted twin radiators and finally vented to atmosphere through the transmission covers. The fans themselves are driven mechanically from the main engine and electrically when the charging set engine only is in use. Aspiratory air can be drawn either from the fighting compartment, or from the engine compartment, through the two oil-bath air cleaners situated in the two rear corners of the former compartment. The heavy requirement for electrical power in the tank is met largely by a 350 amp generator driven by a 29 bhp engine positioned

The largest gun fitted to any British tank of World War II design was a 3.7-inch 32-pdr., which had a muzzle velocity of 3,050 ft./sec. It was mounted in the A39 Tortoise, of which six pilot models were built. Delivery of the first was scheduled for August 1945, but in fact the pilots were not delivered until 1946-47, by which time the FV 200 Universal Concept had taken over. Tortoise never went into production. Seen here is a three-quarter front view of the third pilot.





Rear view of A39 Tortoise which weighed 78 tons with 225 mm. maximum armour and 35 mm. minimum. It was 10 ft. high, 12 ft. 10 in. wide, and 33 ft. long including its 3.7-inch 32-pdr. gun which was in a limited traverse mount.

at the right rear of the main engine. Operation is independent of the M120 except that the cooling and fuel systems are inter-connected. Normal running (as distinct from fighting) loads are met by a second generator driven by the main engine with a rated output of 150 amps over a wide range of driven speeds.

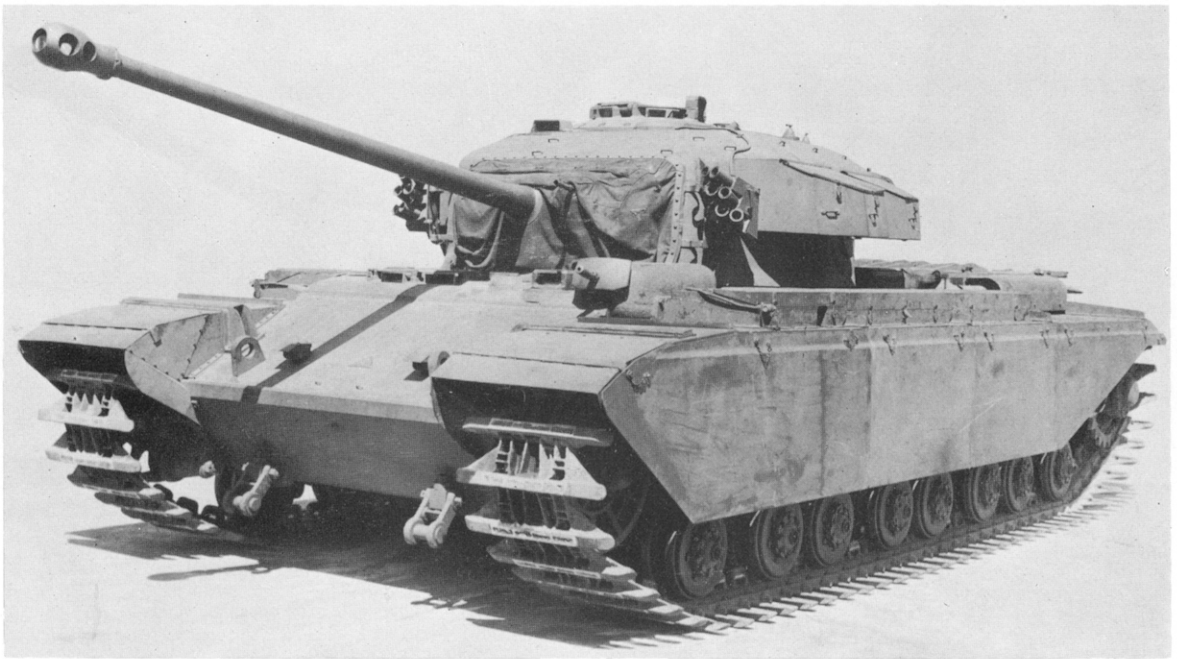
Drive from the main engine is transmitted through a triple dry plate clutch mounted on the flywheel and is operated mechanically. The combined change speed and steering mechanism of Merritt-Brown origin is, again, similar to that in Centurion and incorporates a differential and five forward and two reverse speeds.

Steering radii depend on the gear selected, ranging from 140 feet in top gear to 16 in first, thus involving extra work on the part of the driver and reduction of average speeds where many changes of direction are involved; pivot turns are possible when the gearbox is in neutral. Drive from the gearbox is then taken through the drum-type steering and main brakes to the final drives—which consist of double reduction gear trains—out to the driving sprockets.

The suspension system is similar again to that in Centurion although there are four stations on either side instead of three and the smaller wheels, two in each

The first pilot model of the A39 Tortoise. Secondary armament was three Besa 7.92 mm. machine-guns, two in an independent turret on the roof for AA defence and the third to the left of the 32-pdr. The Besas are not mounted in this picture but their locations can be seen. Tortoise's huge superstructure was cast in one piece and its armour thickness was proof against any known German anti-tank gun of the period. It had a crew of seven.





A prototype of A45. The Centurion design of turret mounts a 17-pdr. gun instead of the 20-pdr. intended for production vehicles. The remotely-controlled machine-gun can be seen above the left track guard.

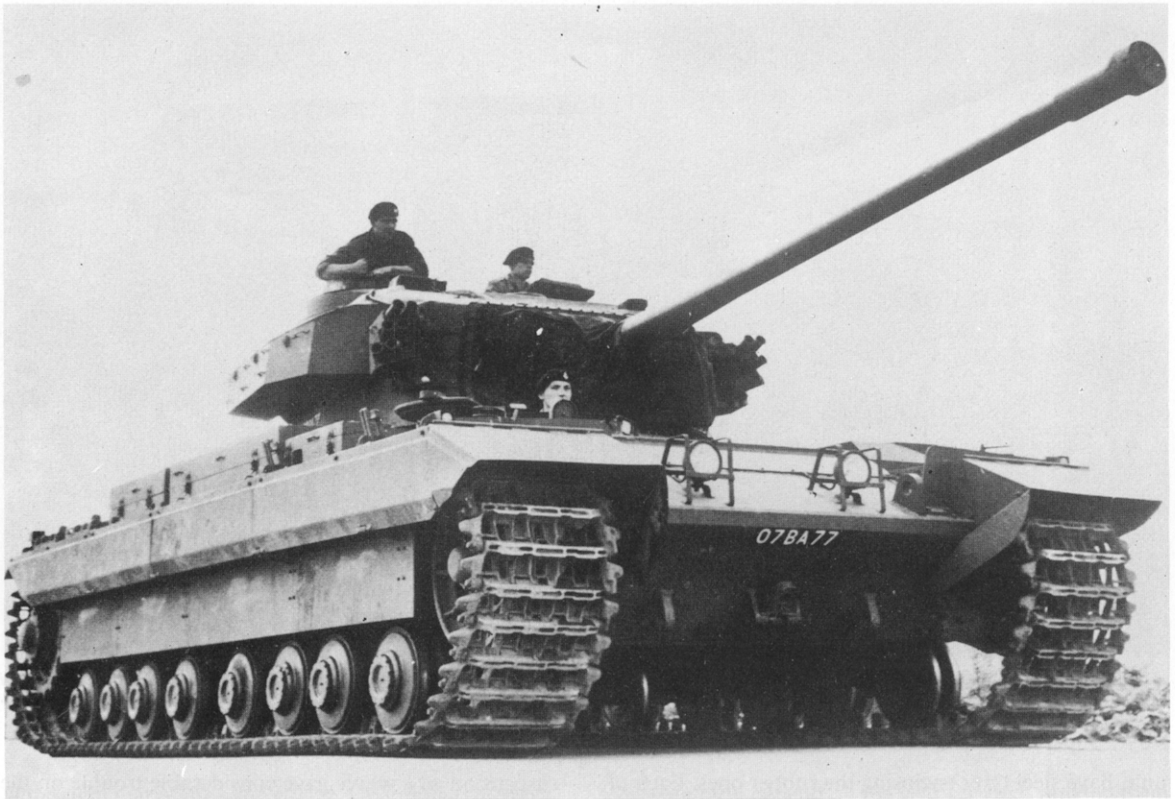
unit, have steel tyres enclosing the rubber ones. Each of the four units on either side has three horizontal springs mounted concentrically and held between knife edges on the axle arms. No shock absorbers are fitted. The top run of the track is supported by four guide rollers on each side. Both the manganese steel, dry-pin tracks and the

suspension as a whole gave considerable trouble on the earlier vehicles, as well as requiring a great deal of servicing, but reliability improved in series production.

The turret shell consists almost entirely of a single armour steel casting with its forward aspects well sloped and a more steeply sloped and rounded bustle

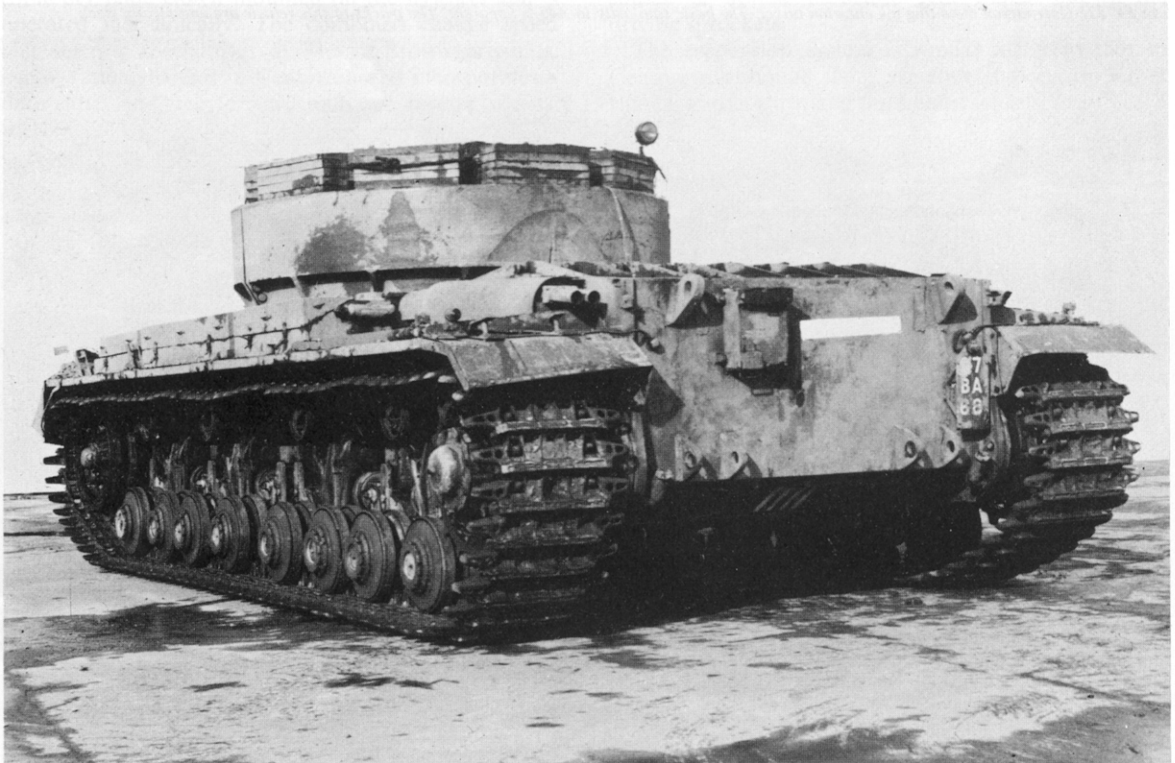
An FV 221 Caernarvon mounting a Centurion turret. The basic similarity to A45 is apparent. The tracks of this vehicle are untypically slack.





FV 221 Medium Gun Tank Caernarvon, externally similar to the ill-fated FV 201, with its Centurion Mark 3 turret on an adaptor ring, was used to gain experience in the building and operation of a tank as large as FV 214 Conqueror. Caernarvon weighed 60 tons.

A prototype of FV 214 carrying a superstructure weighted to simulate the turret which was not then available for trials.





The first Conqueror. A protective counter-weight has been fitted on the 120 mm. barrel in lieu of the fume extractor. The armoured door for the case ejection chute is visible behind the smoke dischargers on the turret side.

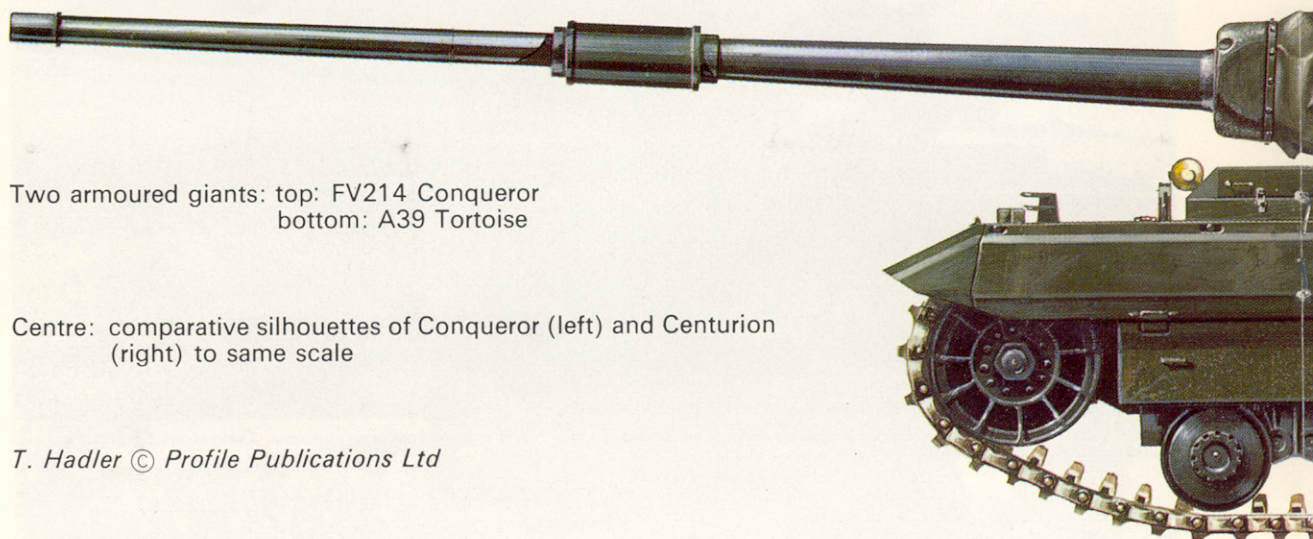
into which the commander's fire control turret is fitted. The gunner and loader are forward and to the right and left of the commander respectively, both having hatches similar in design to that in the driver's compartment. A large rectangular plate forms the front of the

turret roof. A stowage rack is mounted on the rear of the turret bustle in production vehicles, and smoke grenade dischargers on either side.

A prominent external mantlet fits over the 120mm gun cradle consisting of two welded sections containing

Conqueror Mark I, with turret reversed, showing the distinctive design of the turret and the arrangement of the four paired-wheel suspension units on each side.

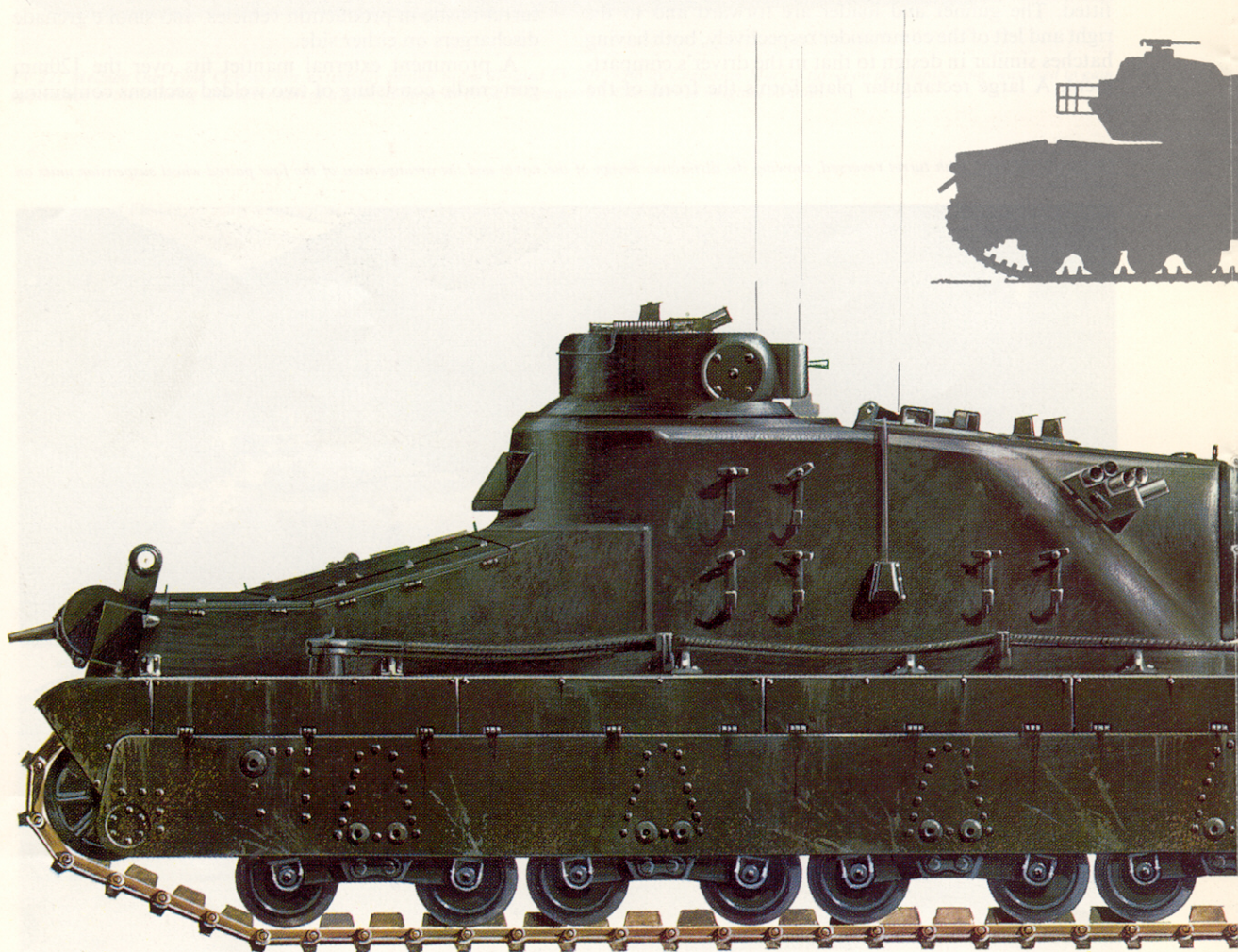


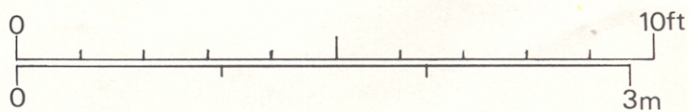
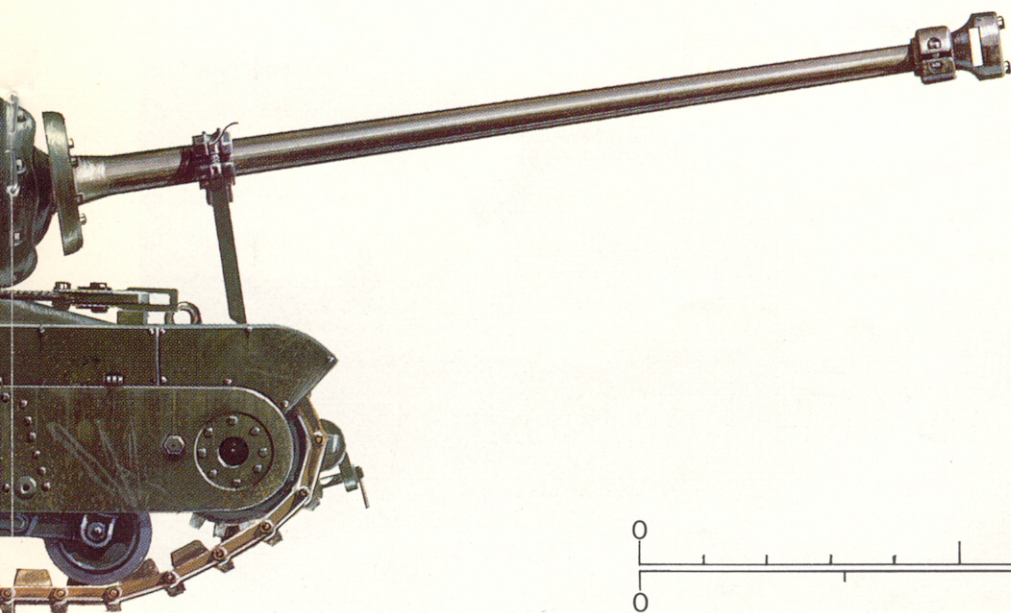
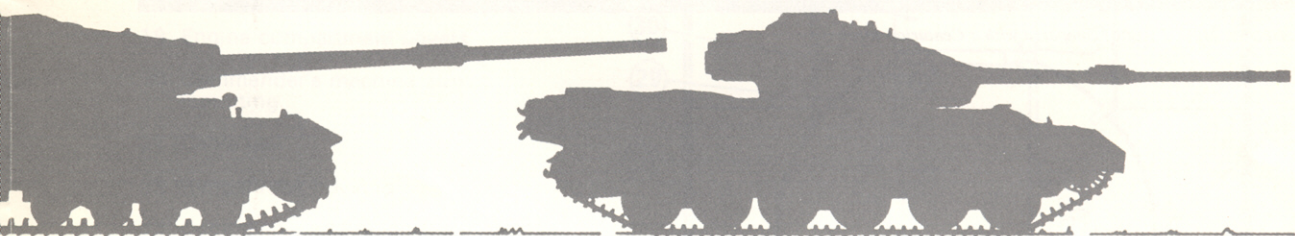
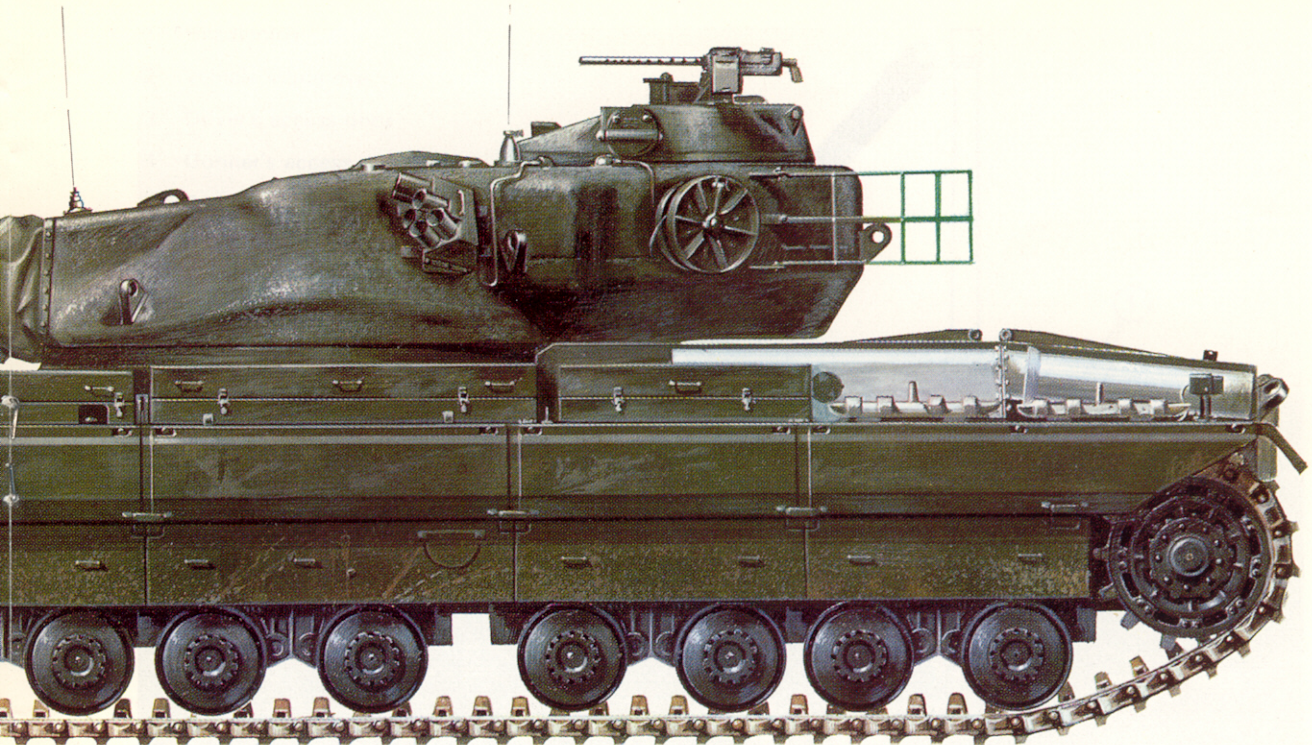


Two armoured giants: top: FV214 Conqueror
bottom: A39 Tortoise

Centre: comparative silhouettes of Conqueror (left) and Centurion
(right) to same scale

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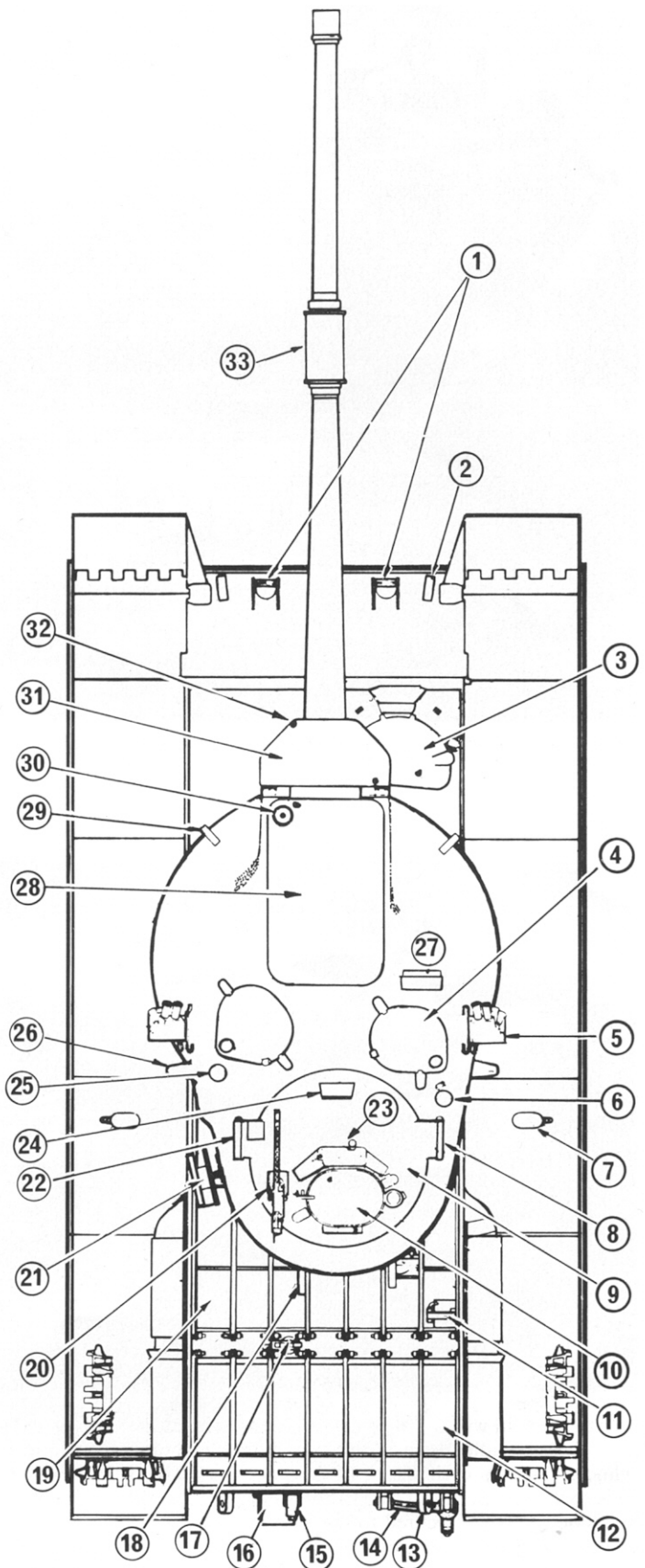


Conqueror Mark 1 (right) compared with a Centurion Mark 3.

Conqueror Mark 1. The tank weighed 65 tons.



- 1 Headlamps
- 2 Vehicle lifting eye
- 3 Driver's access door
- 4 Gunner's access door
- 5 Smoke dischargers
- 6 Aerial base
- 7 Fire extinguisher
- 8 Rangefinder housing
- 9 Fire control turret
- 10 Commander's access door
- 11 Main and charging set oil filters access
- 12 Transmission compartment covers
- 13 Vehicle lifting eye
- 14 Gun crutch
- 15 Alternative position for gun crutch
- 16 Infantry telephone
- 17 Coolant level access
- 18 Turret lifting eye
- 19 Engine compartment covers
- 20 Commander's machine gun mounting
- 21 Cable reel
- 22 Rangefinder housing
- 23 Commander's M.G. and observation periscope No. 6
- 24 Commander's sighting telescope-cum-periscope No. 8
- 25 Aerial base
- 26 Turret lifting eye
- 27 Gunner's sighting periscope
- 28 Armoured access plate
- 29 Turret lifting eye
- 30 Aerial base
- 31 Mantlet
- 32 Aperture for co-axial Browning M.G.
- 33 L1, 120mm barrel with fume extractor





Two views of a Conqueror Mark 1, with a crew of The Queen's Own Hussars, in heavy going. Mark 1 can be distinguished from Mark 2 by the three driver's periscopes (instead of one) and by the prominent joint between the glacis and hull plates.



bronze liners in which the gun slides. A housing at the rear of the cradle receives the two hydraulic buffer cylinders, one on each side, and they are secured by a yoke to the breech ring. The pneumatic recuperator and intensifier units are secured to the semi-automatic cam underneath. Maximum recoil is about 18 ins. The 120mm gun consists of a single tube with a fume extractor midway along the gun barrel and a breech ring contain-

ing a horizontally sliding breech block which opens automatically during run-out to battery. Due to their size and weight the projectiles and cartridges are loaded separately, the former being rammed by the sealed brass cases. APDS and HESH are the only service natures of ammunition provided and the total 35 rounds are stowed to the left of the driver and in the fighting compartment itself. The firing circuit is initiated electric-



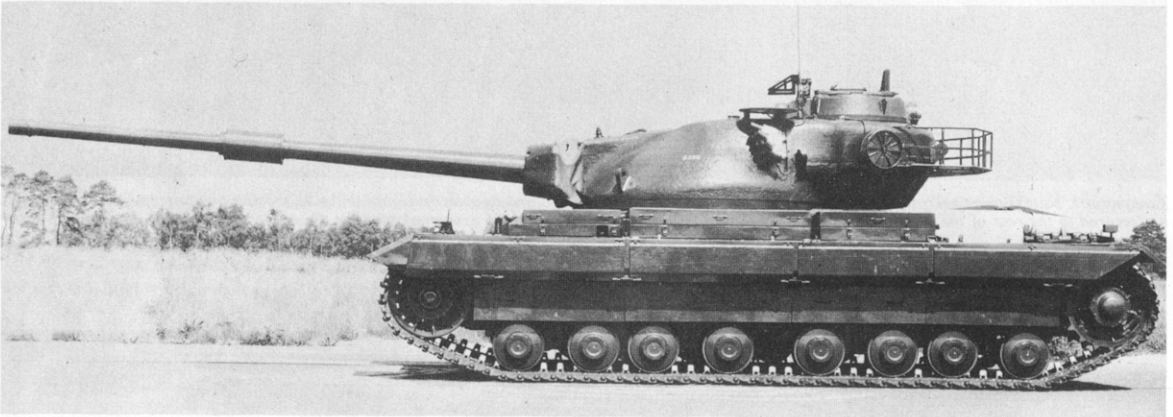
Conqueror 1. Note the vertical rear plate of the hull with the gun travelling clamp folded down on the right-hand side, the twin exhaust pipes, the camouflage net secured to the rear of the turret by straps before the introduction of a rack, and the armoured cowl for the rangefinder window on the right of the fire control turret.

Conqueror Mark 2, showing the revised layout of the front hull armour with a single periscope for the driver. The gun has a fume extractor fitted and the fire control turret is traversed at 90° right to the turret axis.





Conqueror 2 showing the stowage rack on the rear of the turret which was fitted as a retrospective modification. The circular object is the cable reel for remote communication.

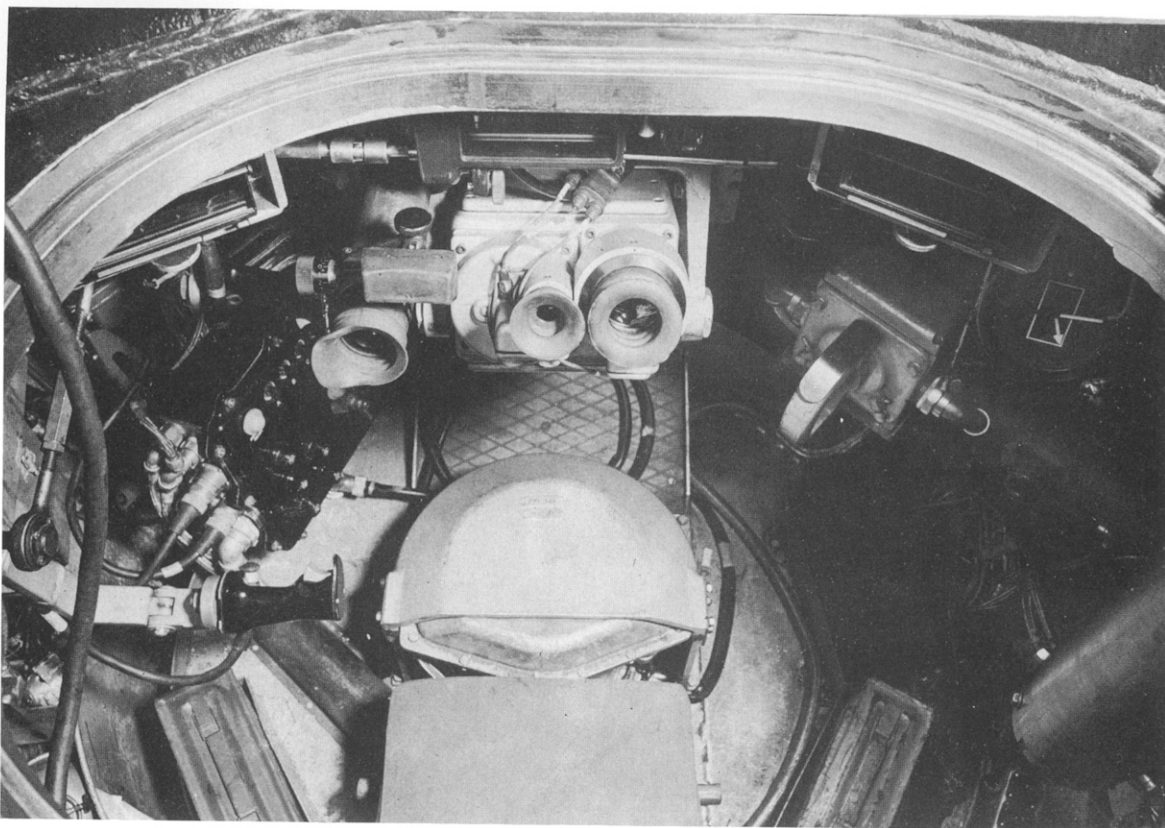


Conquerors of the 11th Hussars (now amalgamated with the 10th Royal Hussars as The Royal Hussars) on a firing range in Germany. The last Conqueror was withdrawn from service in 1966. Note the size of the sealed brass cartridge cases for the 120 mm. gun. Projectiles and cartridges were loaded separately.



ally although the cartridge is fired by percussion cap. After being ejected from the gun the empty case falls into the base ejection unit and operates a starter switch, a chain drive is actuated and the case carried on a lifting bar up a chute behind the gunner's seat. As the case nears the top an armoured door in the turret side opens and the case is ejected onto the ground, the door closes and the chain drive recycles ready for the next one. Admirable

in concept in order to keep the turret clear of empty brass the equipment often becomes defective and the commander has to operate it by hand or more often, the loader throws the case out of his hatch: both operations requiring considerable exertion. A simple coaxial mounting for the 0.30in Browning MG is secured to the left of the cradle, and a fume extractor is connected to an aperture in the roof. If the stabiliser is not in use the gun



An interior view of the FCT (fire control turret) of a Conqueror 1. From left to right note the operating arm for the externally-mounted Browning MG, the turret switch panel, the eyepiece for the rangefinder (the elevating handle is just to its left), the No. 8 sight with the two eyepieces (and above it, the No. 6 sight for the MG), the traverse controller incorporating the line up switch and the turret position indicator. The squab of the adjustable seat is at the bottom centre of the picture with the rotary base junction in front of it.

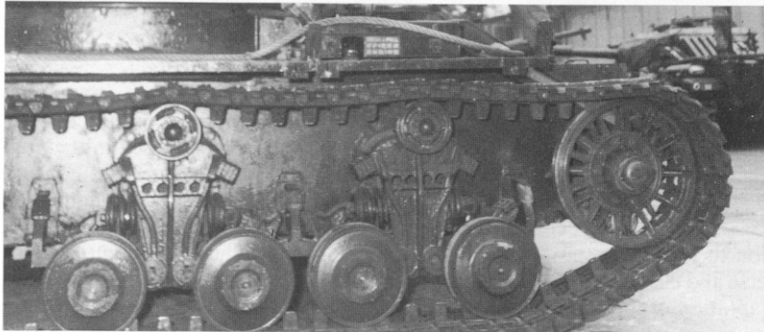
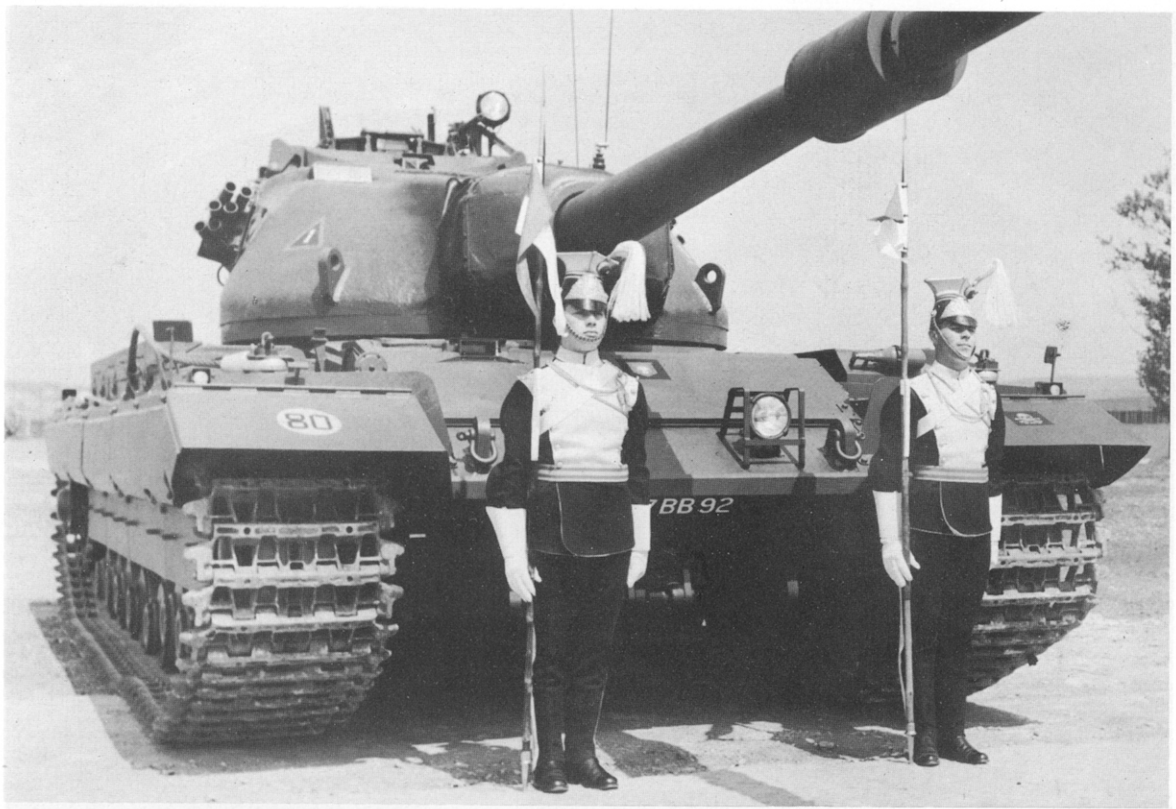
is secured in a travelling clamp mounted on the rear of the hull. In this position the overhang of the barrel is so great that considerable care is necessary when manoeuvring the vehicle and a special tail light assembly is hung on the muzzle for night moves.

The gunner has a very cramped position to the right of the 120mm gun. He will normally traverse and elevate the gun under power control using an adaptation of the control equipment used in Centurion and incorporating an alternator and metadyne set which controls the input signals to the respective gearboxes. The arc of elevation is from plus 15° to minus 7° maximum. In order to minimise the possibility of damage to these gearboxes the gun is automatically switched to a stabilised mode and elevated as soon as a velocity sensor detects that the tank is moving at over 1.5 mph. While essential mechanically this facility is undesirable tactically as the gunner has no control over the attitude of the gun until the vehicle has almost halted, with the result that the first intimation of the approach of a Conqueror is often the sight of a gun muzzle waving aimlessly in the air. Hand elevation is possible using a handwheel (early) or a handle (series production) to actuate a hydraulic motor. Similarly a single speed electrical emergency traverse or—in dire straits—a very low gear handwheel is available.

SIGHTING AND FIRE CONTROL

The sighting and fire control system was designed to achieve the highest possible chance of a hit on tanks at long ranges and its layout is both lavish and complex.

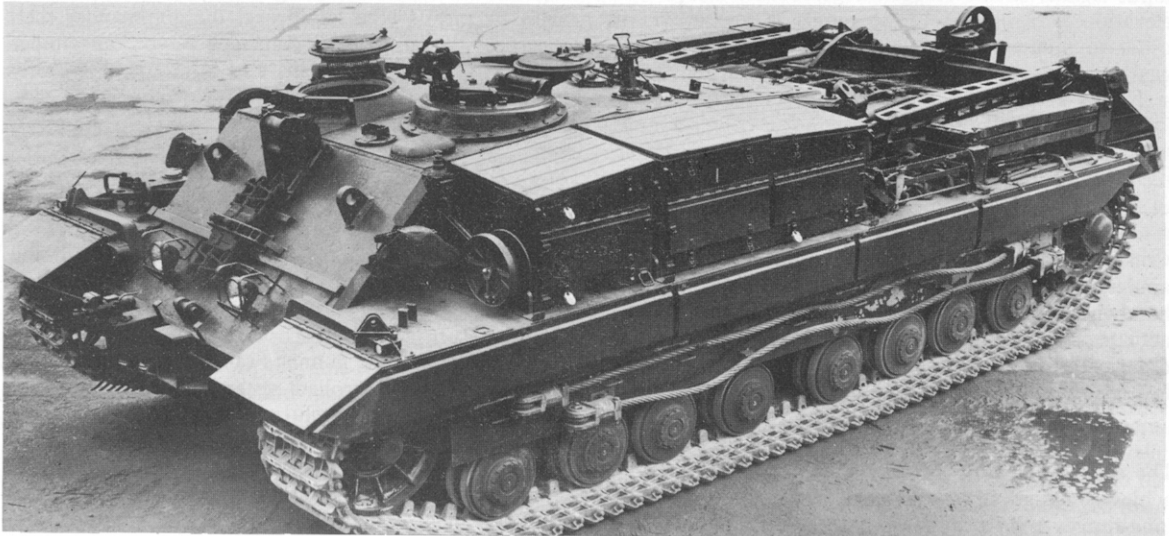
It can best be described in following the sequence of an engagement using the system originally used in the pre-production vehicles. The commander's fire control turret (FCT) is traversed independently under power control until he detects a target using his X6 periscopic sight. This is a binocular instrument although the left eyepiece shows a range scale which is identical to that used by the gunner and connected to it by means of a servo system. Having then acquired the target in the centre of the field of view of his right eyepiece by traversing the turret and elevating the upper mirror of the sight by means of a handwheel the commander then measures the range. The coincidence-type rangefinder has a base length of 49 ins and is mounted laterally across the FCT, the external windows on either side being protected by armoured flaps. As the periscopic sight and the rangefinder move through the same angles of elevation when the handwheel is operated the target is now in the centre of the field of view of the rangefinder. By rotating the working head the commander brings the upper image of the target into coincidence with the lower. Having done this he reads the range in the left eyepiece (and possibly takes the mean of several ranges); he then returns to his periscopic sight and sets the mean range on his and the gunner's range scale by operating the electrically controlled setter unit. This done he presses the line-up switch on top of his traverse controller. The main turret is driven onto the line defined by the sight, his FCT contra-rotating, and the gun assumes the correct quadrant elevation which is derived from the relative misalignments of the magslips con-



Conqueror 2 of the 17th/21st Lancers in the British Army in Germany with two troopers in full dress uniform mounting guard. The sign on the turret indicates that the tank is in No. 1 Troop, A Squadron, and those in front (from left to right) are the bridge classification (80), the formation sign of the 4th Guards Brigade (behind the left trooper's left shoulder), vehicle registration number, and (to the left of the right trooper's left arm) the unit badge.

Conqueror 2 with track skirt removed showing two of the four stations of the suspension system on the tank's right-hand side.

A prototype of FV 222, the ARV Mark 2, in which the driver was in the main crew compartment. (Picture sources for this Profile are Imperial War Museum, RAC Tank Museum, British Army PR, FVRDE, and Duncan Crow).





The wooden mock-up of FV 215b, the Heavy Anti-Tank SP mounting a 180 mm. gun.



Front view of FV 219 ARV Mark 1 driving on to a transporter. Note driver's three periscopes as in Conqueror 1.

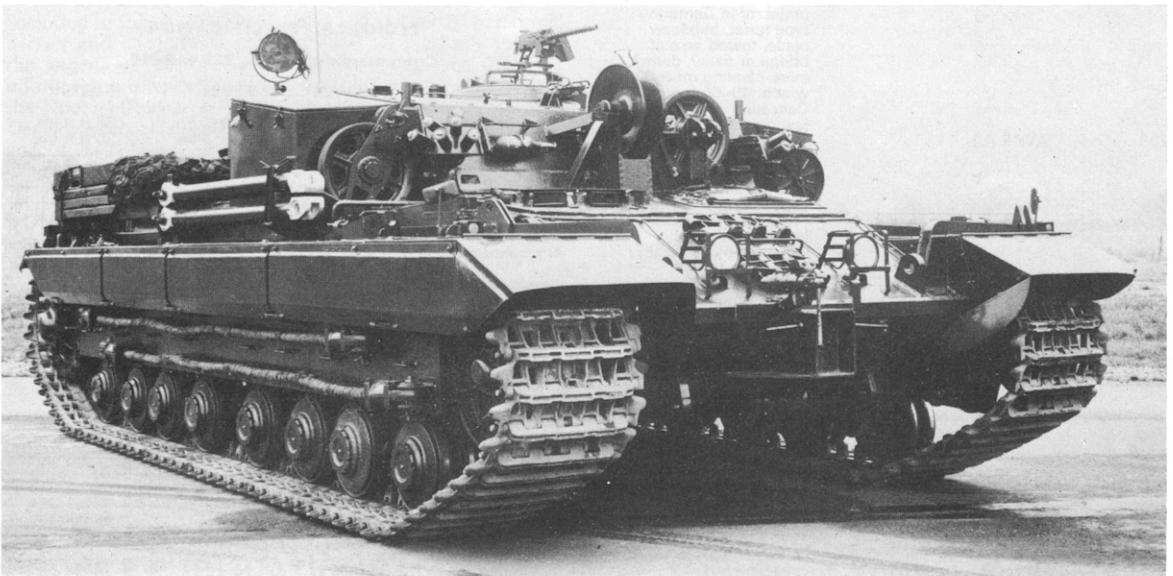
nected to the commander's elevating handwheel and the gun mounting, together with the target elevation applied by the range setter unit. As the two turrets line up an injected image of the gunner's sight graticule appears in the right eyepiece of the commander's sight. This image is projected from the collimator unit just forward of the FCT ring and is connected to the gunner's sight mounting by a parallelogram linkage and thus defines the gunner's lay. The commander can then either make the necessary fine adjustments to his lay and fire the gun himself or hand over control to the gunner.

The gunner's periscopic sight is similar to that used on the later marks of Centurion having a X6 optical system for laying the guns, a uni-power observation window and a range scale reflector for his left eye. When the gun control equipment is running any adjustment by the gunner of the range adjuster results in the gun moving by the requisite amount by means of steel tape drive from the sight bracket to the magflip drive.

As a lateral tilting of the tank will result in the throw-off of the projectile in the direction of tilt the gunner has an indicator consisting of a bubble vial in conjunction with a correction scale. The gunner can then set the appropriate aim-off in his sight to compensate for this effect, the one facility in the system not shared by the commander. Ideal in concept the equipment proved unreliable in the pre-production vehicles and later Conquerors had a somewhat attenuated version.

The commander has a third sight in his turret by means of which he lays the 0.30in Browning MG mounted externally on the left of the FCT and used either for anti-aircraft fire or against short-range ground targets. Two episcopes—one either side of the periscopic sight and a gun and turret position indicator complete the main items of equipment in the very cramped FCT which is topped by a hatch which can be secured in an umbrella position to give an all-round field of view with some degree of protection from splinters.

FV 219 ARV (Armoured Recovery Vehicle) Mark 1 as issued to units equipped with Conquerors and their supporting workshops.



TACTICAL EMPLOYMENT

The Conqueror was a large, heavy and noisy tank with a single role: the destruction of heavy tanks at ranges beyond the capability of Centurion. Although it mounted two MGs it had no other offensive capabilities, although its armour protection was superior to that on Centurion.

A maximum of nine Conquerors were issued to most (but not all) armoured regiments in BAOR and they were either grouped in troops of three, one to each Centurion Squadron, or became the fourth tank in an ordinary troop. In the advance Conquerors would usually move a tactical bound behind the point troop. In defensive positions they were usually sited to cover the most likely tank approaches although there were often difficulties in finding true hull-down positions (unless dozers were available to dig them in) due to the limited depression arc of the 120mm. Together with the lack of proper HE and smoke rounds, unreliability and heavy servicing loads and the other disadvantages mentioned, these were tactical liabilities that made few regret the demise of Conqueror when the introduction of the more efficient L7 105mm gun became available for Centurion. The Conqueror in the RAC Tank Museum at Bovington is the only one still maintained in good order. The remainder are being slowly battered to scrap as hard targets on tank ranges; an ignominious end for a design that was once hailed as Universal.

AFV/Weapons

Series Editor: **DUNCAN CROW**

FV Number	Title	Description
206	SP Medium Artillery	As for FV205.
207	SP Heavy Artillery	As for FV205.
208	Universal Bridgelayer	53 ft rigid span. Cancelled in 1950 in favour of FV4002 based on Centurion. 40-60 tons class.
209	Universal ARV	Armoured Recovery Vehicle. 35-45 tons. 50 ton winch. Cancelled in late 1951 in favour of FV219.
210	Tractor Heavy Artillery	35-45 ton class. Cancelled in 1949.
211	Tractor Medium Artillery	As for FV210.
212	Assault Personnel Carrier	As for FV210.
213	BARV	Beach Armoured Recovery Vehicle. Project started in 1948 and cancelled in 1949.
214	Conqueror Heavy Gun Tank	See text.
215a	Heavy AVRE	Replaced both FVs 202 and 203. Equipment included vibrated mine-clearing roller, dozer blade, rapid demolition device, load-carrying trailer, crane jib and 8.5 ins gun. Cancelled in favour of FV4003 based on Centurion.
215b	Heavy Anti-Tank SP	Project started in 1951. 180mm gun in limited traverse mounting in turret at extreme rear of hull. Cancelled in mid-1950s in favour of Malkara anti-tank missile.
216	Mine flail	Successor to FV204. Cancelled in early 1950s in favour of FV3902 based on Churchill.
217	SP 120mm Medium Anti-Tank No. 1	Initiated in 1951 but cancelled soon after.
218	—	—
219	ARV Mk 1	Successor to FV209. In service with regiments and REME Workshops to support FV214.
220	—	—
221	Medium Gun Tank No. 1	See text.
222	Caernarvon ARV Mk 2	Intended successor to FV219 with forward crew compartment. Not proceeded with.
223	ARK	Started in 1956 but cancelled in favour of FV4016 based on Centurion. Span 75 ft with extended length 81 ft.

VARIANTS ON THE FV200 SERIES

FV Number	Title	Description
200	—	General designation for series
201	Universal Tank	See text
202	AVRE (T)	Armoured Vehicle Royal Engineers (Turret). 6.5 ins demolition charge projector in Centurion type turret, bulldozer blade, towed assault bridge or trailer, derrick, mine-clearing roller, GP winch. 40-60 tons. Cancelled in 1949 in favour of FV215.
203	AVRE (L)	(Launcher). No turret but built specifically as Ark, with crew of 3. Nine assault engineers in centre compartment. Front ramp carried on top trackway and launched hydraulically. Rear ramp towed. Facilities for laying mines. Capable also of towing load-carrying trailer or assault bridge and carrying fascine. 10 ton capacity swinging crane to be used for construction of heavy rafts at sites inaccessible to wheeled vehicles. 40-60 tons all up weight. Proceeded to mock-up stage but cancelled in 1949 in favour of FV215.
204	Universal Flail	See text. Cancelled in 1949 in favour of FV216.
205	SP Medium Anti-Tank	40-55 tons. Design work limited and project cancelled in 1949.

TECHNICAL SPECIFICATION

Comparison of FV201, 221 and 214

	FV201	FV221	FV214
Crew	5	4	4
Length overall	—	31 ft 7 ins	38 ft 0 ins
Length of hull	25 ft 6 ins	25 ft 3 ins	25 ft 4 ins
Track contact length	—	—	16 ft 3 ins
Overall width	—	13 ft 0 ins	13 ft 1 in
Track width	2 ft 8 ins	—	2 ft 7 ins
Ground clearance	—	1 ft 8 ins	—
Overall height	9 ft 8 ins	11 ft 8 ins	11 ft 0 ins
Weight combat loaded	55 tons	60 tons (appx)	65 tons
Ammunition stowage:			35 (cases & projectiles 120mm)
main armament	74 (83mm)	—	—
secondary	5625	—	7500
Protection (ins/°)			
Upper glacis	60°	—	—
Nose plate	3/45	—	—
Hull side	2 + 1/4 vert	—	—
Hull roof	1 1/4 hor	—	—
Belly	20mm	—	—
Turret front	6	—	—
sides	3 1/2	—	—
roof	1 1/8	—	—
Trench crossing	—	—	11 ft 0 ins
Vertical obstacle	—	—	3 ft 0 ins
Ford unprepared	—	—	4 ft 9 ins
Maximum grade	—	—	35°
Operating road range	110 miles	—	95 miles
Max speed (mph)	19	—	21.3
Nominal ground pressure (psi)	9.84	—	12.0

AFV/Weapons Profiles

Edited by **DUNCAN CROW**

FORTHCOMING TITLES:

39 Panhard Armoured Cars

This Profile covers the remarkable eight-wheeled EBR and the compact AML, now used by more than a dozen different countries and both built by Panhards who have a longer connection with armoured car development than any other company in the world still in this field: BY R. M. OGORKIEWICZ, of the Imperial College of Science and Technology, one of the world's leading experts in the design of combat vehicles, author of *AFV/Weapons Profiles 28 and 34*.

40 U.S. Armoured Cars

Although armoured cars, a familiar sight in many countries, have never been popular in the United States, more varieties have existed there than is generally realised. This Profile recounts the whole story of U.S. armoured cars from the Davidson car of 1898 to the XM808 on the Lockheed Twister chassis of today: BY COLONEL ROBERT J. ICKS, the famous American armoured expert, author of *AFV/Weapons Profiles 16, 24, 26 and 32*, and *Profile Book AFV/Weapons Series No. 1 Modern U.S. Armored Support Vehicles*.

41 M103 Heavy + M41 Light (Walker Bulldog)

The Berlin airlift and the beginning of the so-called Cold War placed new emphasis on the U.S. post-World War II tank programme. The result was the emergence of three basic designs, the T41 Light Tank, the T42 Medium Tank, and the T43 Heavy Tank. This Profile deals with the first and third of these – the T41 which was standardized as the M41 and named the Walker Bulldog, and the T43 which became the M103 Heavy Tank: BY COLONEL ROBERT J. ICKS, author of *AFV/Weapons Profiles 16, 24, 26, 32 and 40*, and *Profile Book AFV/Weapons Series No. 1 Modern U.S. Armored Support Vehicles*.

42 Modern Swedish Light Armoured Vehicles

Included in this Profile are the Pbv 302 armoured personnel carrier and its derivatives – the Bgbv 82 recovery vehicle, the ingenious Brobv 941 bridgelayer and the IKV 91 infantry gun intended for operation in the north of Sweden, the Noorland: BY R. M. OGORKIEWICZ, author of *Design and Development of Fighting Vehicles and Armoured Forces*, and of *AFV/Weapons Profiles 28, 34 and 39*.

43 PanzerKampfwagen IV

While the Panther and Tiger have tended to capture the limelight, it was in fact the Panzer Kampfwagen III and IV which established the reputation of the German armoured forces. The Panzer IV, whose first prototype was built in 1934, eventually became the only German tank which remained in production and troop service throughout World War II, a fact which demonstrates its sound basic design and the brilliant foresight shown in its specification. It was still in service in the Syrian Army as late as 1967.

44 Ferret and Fox Scout and Reconnaissance Cars

Ferrets, developed from the Second World War experience with the Daimler scout cars, have become some of the world's most widely used armoured vehicles. Thus, they are in service not only with the British Army, but also with the armed forces of more than twenty different countries. The successful experience with them has, in turn, led to the even more effective Fox armoured car (or Combat Vehicle, Reconnaissance, Wheeled). This has aluminium armour and much more powerful armament but otherwise retains many of the characteristics of the Ferrets: BY R. M. OGORKIEWICZ.

45 Vickers 37-ton Main Battle Tank (Vijayanta)

46 Light Tanks M22 (Locust) and M24 (Chaffee)

47 T-34

48 PanzerKampfwagon VII - Tiger I (H)

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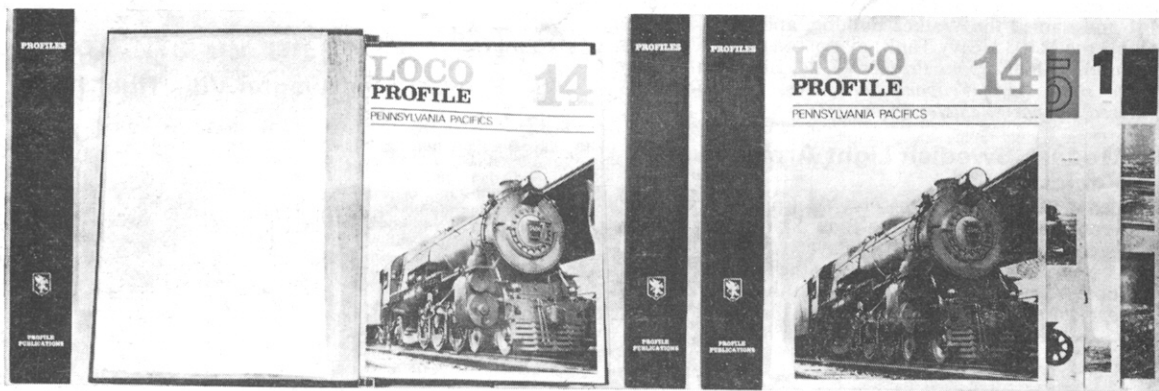
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